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EXAMINER	
ZERVIGON, RUDY	

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/071,908	KINNARD ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21 and 32-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21 and 32-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-4, 6, 10-16, 21, and 32-36 rejected under 35 U.S.C. 103(a) as being unpatentable over Halpin; Michael W. (US 6143079 A) in view of Hoke; William E. et al (US 5077875 A). Halpin; Michael W. (US 6143079 A) teaches a reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) comprising: a base unit (18; Figure 2, 4); a chuck assembly (36; Figure 2) disposed in a cavity (32; Figure 2) of the base unit (18; Figure 2, 4), wherein the chuck assembly (36; Figure 2) comprises a support (36/56 interface; Figure 2) having a surface capable of receiving a substrate (56; Figure 3,4); a process chamber (portion 108 of 10; Figure 4) comprising a top wall (12 - quartz; Figure 2,4; column 5; lines 49-59), a bottom wall (14; Figure 4), and sidewalls (inner surface of 108; Figure 4) extending therefrom substantially perpendicular to the support surface (36/56 interface; Figure 2) of said chuck assembly (36; Figure 2), and a cylindrical opening (along length between 12 and 14; Figure 4) extending through the bottom wall (14; Figure 4) to the top wall (12 - quartz; Figure 2,4; column 5; lines 49-59) defining a substantially cylindrically shaped interior region having a central axis extending substantially perpendicular to the support surface (36/56 interface; Figure 2) of said chuck assembly (36; Figure 2), wherein the process chamber (portion 108 of 10; Figure 4) is coupled to the base unit (18; Figure 2, 4) – claim 1

Halpin further teaches:

i. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the top wall (12 - quartz; Figure 2,4; column 5; lines 49-59) of the process chamber (portion 108 of 10; Figure 4) is removable, as claimed by claim 4

ii. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the exhaust manifold (24,26,28; Figure 2,3) assembly is adapted to receive the gas and/or reactant flow from the process chamber (portion 108 of 10; Figure 4) at about a plane parallel to the surface of the substrate (56; Figure 3,4), as claimed by claim 6

iii. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the support (36/56 interface; Figure 2) of the chuck assembly (36; Figure 2) is stationary and non-rotating, as claimed by claim 10. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

iv. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the top wall (12 - quartz; Figure 2,4; column 5;

lines 49-59) is substantially transparent to a light source (89; Figure 2), as claimed by claim 12

v. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the top wall (12 - quartz; Figure 2,4; column 5; lines 49-59) is substantially transparent to a UV light source (89; Figure 2), as claimed by claim 13

vi. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the top wall (12 - quartz; Figure 2,4; column 5; lines 49-59) is substantially transparent to an infrared light source (89; Figure 2), as claimed by claim 14

vii. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the process chamber (portion 108 of 10; Figure 4) includes a third sidewall opening (24; Figure 3,4) in the sidewall adjacent to the first (26; Figure 3) and second (28; Figure 3) sidewall openings, wherein the third opening (24; Figure 3) is sized for transporting the substrate (56; Figure 3,4) into an interior region of the process chamber (portion 108 of 10; Figure 4), as claimed by claim 15

viii. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the inlet manifold assembly (14, 15a, not including 12; Figure 3) is adapted to introduce the gas and/or reactants at about a plane parallel to a surface of the substrate (56; Figure 3,4) and the exhaust manifold assembly (13, 16, 17; Figure 3) is adapted to exhaust the gas and/or reactants at about a plane parallel to a surface of the substrate (56; Figure 3,4), as claimed by claim 21

ix. A reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) comprising: a base unit (18; Figure 2, 4); a chuck assembly (36; Figure 2) disposed in a cavity (32; Figure 2) of the base unit (18; Figure 2, 4), wherein the chuck assembly (36; Figure 2) comprises a support (36/56 interface; Figure 2) having a surface capable of receiving a substrate (56; Figure 3,4); a process chamber (portion 108 of 10; Figure 4) comprising a transparent top wall (12 - quartz; Figure 2,4; column 5; lines 49-59), a bottom wall (14; Figure 4), and sidewalls (inner surface of 108; Figure 4) extending therefrom, and a cylindrical opening (along length between 12 and 14; Figure 4) extending through the bottom wall (14; Figure 4) to top the wall to define a substantially cylindrically shaped interior region, wherein the process chamber (portion 108 of 10; Figure 4) is coupled to the base unit (18; Figure 2, 4); a light source (89; Figure 2) assembly in operable communication with the transparent top wall (12 - quartz; Figure 2,4; column 5; lines 49-59) for projecting radiation into the process chamber (portion 108 of 10; Figure 4) – claim 32

x. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) of Claim 32, wherein the light source (89; Figure 2) assembly comprises a housing (8; Figure 2) and a light source (89; Figure 2), as claimed by claim 33

xi. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) of Claim 32, wherein the top wall (12 - quartz; Figure 2,4; column 5; lines 49-59) comprises a quartz material, as claimed by claim 34

xii. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) of Claim 32, wherein the exhaust manifold assembly is adapted to receive the gas

and/or reactant flow from the process chamber (portion 108 of 10; Figure 4) at about a plane parallel to a surface of the substrate (56; Figure 3,4), as claimed by claim 35

xiii. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) of Claim 32, wherein the transparent top wall (12 - quartz; Figure 2,4; column 5; lines 49-59) is removable (Figure 4), as claimed by claim 36

Halpin does not teach:

i. an inlet manifold assembly in fluid communication with a first sidewall opening (94; Figure 2) of the process chamber (portion 108 of 10; Figure 4) in a selected one of the sidewalls (inner surface of 108; Figure 4), and an exhaust manifold assembly in fluid communication with a second sidewall opening (74; Figure 3,4) of the process chamber (portion 108 of 10; Figure 4) in the sidewall diametrically opposed from the selected one of the sidewalls (inner surface of 108; Figure 4)

ii. wherein the inlet manifold assembly (22, 112, 114, 116; Figure 2,3) comprises a flow-shaping portion adapted to laterally elongate a gas and/or a reactant flow into the process chamber (portion 108 of 10; Figure 4), wherein the fluid communication between the inlet manifold assembly (22, 112, 114, 116; Figure 2,3) and the first sidewall opening (94; Figure 2) of the process chamber (portion 108 of 10; Figure 4) is free from a baffle plate – claim 1

iii. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the flow-shaping portion of the inlet manifold assembly (22, 112, 114, 116; Figure 2,3) is adapted to introduce the gas and/or reactant

flow into the process chamber (portion 108 of 10; Figure 4) at about a plane parallel to a surface of the substrate (56; Figure 3,4), as claimed by claim 2

iv. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the flow-shaping portion is triangularly shaped, as claimed by claim 3

v. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the inlet manifold assembly (22, 112, 114, 116; Figure 2,3) further comprises a flow restrictor attached to an opening of the flow-shaping portion, as claimed by claim 11

vi. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, further comprising a baffle plate disposed about an opening of the flow-shaping portion (15a; Figure 3), as claimed by claim 16

vii. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the inlet manifold assembly (14, 15a, not including 12; Figure 3) is adapted to introduce the gas and/or reactants at about a plane parallel to a surface of the substrate (56; Figure 3,4) and the exhaust manifold assembly (13, 16, 17; Figure 3) is adapted to exhaust the gas and/or reactants at about a plane parallel to a surface of the substrate (56; Figure 3,4), as claimed by claim 21

viii. an inlet manifold assembly in fluid communication with a first sidewall opening (94; Figure 2) of the process chamber (portion 108 of 10; Figure 4) in a selected one of the sidewalls (inner surface of 108; Figure 4), wherein the inlet manifold assembly comprises a flow-shaping portion adapted to laterally elongate a gas and/or a reactant flow into the

process chamber (portion 108 of 10; Figure 4), wherein the fluid communication between the inlet manifold assembly and the first sidewall opening (94; Figure 2) of the process chamber (portion 108 of 10; Figure 4) is free from a baffle plate; and an exhaust manifold assembly in fluid communication with a second sidewall opening (74; Figure 3,4) of the process chamber (portion 108 of 10; Figure 4) in the sidewall diametrically opposed from the selected one of the sidewalls (inner surface of 108; Figure 4) – claim 32

Hoke; William E. et al (US 5077875 A) teaches a similar CVD apparatus (Figure 3) including:

ix. an inlet manifold assembly (14, 15a, not including 12; Figure 3) in fluid communication with a first sidewall opening (12; Figure 3) of the process chamber (11; Figure 3) in a selected one of the sidewalls (12; Figure 3), and an exhaust manifold assembly (13, 16, 17; Figure 3) in fluid communication with a second sidewall opening (opposite 12; Figure 3) of the process chamber (11; Figure 3) in the sidewall diametrically opposed from the selected one of the sidewalls (12; Figure 3), wherein the first (12; Figure 3) and second (opposite 12; Figure 3) sidewall openings define an entire flow path (volume inside 11) of the gas and/or the reactant flow into and out of the process chamber (11; Figure 3) – claim 1

x. wherein the inlet manifold assembly (14, 15a, not including 12; Figure 3) comprises a flow-shaping portion (15a; Figure 3) adapted to laterally elongate a gas and/or a reactant flow into the process chamber (11; Figure 3), wherein the fluid communication between the inlet manifold assembly (14, 15a, not including 12; Figure 3) and the first sidewall opening (12; Figure 3) of the process chamber (11; Figure 3) is free from a baffle plate – claim 1

xi. wherein the flow-shaping portion (15a; Figure 3) of the inlet manifold assembly (14, 15a, not including 12; Figure 3) is adapted to introduce the gas and/or reactant flow into the process chamber (11; Figure 3) at about a plane parallel to a surface of the substrate (56; Figure 3,4), as claimed by claim 2

xii. wherein the flow-shaping portion (15a; Figure 3) is triangularly shaped, as claimed by claim 3

xiii. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the inlet manifold assembly (14, 15a, not including 12; Figure 3) further comprises a flow restrictor (12,12a; Figure 3) attached to an opening of the flow-shaping portion (15a; Figure 3), as claimed by claim 11

xiv. The reactor assembly according to Claim 1, further comprising a baffle plate (12; Figure 3) disposed about an opening of the flow-shaping portion (15a; Figure 3), as claimed by claim 16

xv. an inlet manifold assembly (14, 15a, not including 12; Figure 3) in fluid communication with a first sidewall opening (12; Figure 3) of the process chamber (11; Figure 3) in a selected one of the sidewalls (12; Figure 3), wherein the inlet manifold assembly (14, 15a, not including 12; Figure 3) comprises a flow-shaping portion (15a; Figure 3) adapted to laterally elongate a gas and/or a reactant flow into the process chamber (11; Figure 3), and an exhaust manifold assembly (13, 16, 17; Figure 3) in fluid communication with a second sidewall opening (opposite 12; Figure 3) of the process chamber (11; Figure 3) in the sidewall diametrically opposed from the selected one of the sidewalls (12; Figure 3) wherein the first (12; Figure 3) and second (opposite 12; Figure 3) sidewall openings

define an entire flow path (volume inside 11) of the gas and/or the reactant flow into and out of the process chamber (11; Figure 3) – claim 32

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace Halpin's reactor piece (20; Figure 3,4) with Hoke's flow-shaping portion (15a; Figure 3) and reactor piece (11,16,17; Figure 3).

Motivation to replace Halpin's reactor piece (20; Figure 3,4) with Hoke's flow-shaping portion (15a; Figure 3) and reactor piece (11,16,17; Figure 3) is for promoting favorable flow characteristics resulting in uniform depositions as taught by Hoke (column 8, lines 5-10; column 3; lines 34-60).

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Halpin; Michael W. (US 6143079 A) and Hoke; William E. et al (US 5077875 A) in view of Mikio Takagi (JP02-152251[1]). Hoke and Watanabe are discussed above. Hoke and Watanabe do not teach that the bottom wall of the base unit is adapted to be stackedly attached to a second reactor assembly. Mikio Takagi teaches, per the translation, a vertical semiconductor manufacturing system (Page 2) including base units (2) adapted to be stackedly attached to plural reactor assemblies (Figure 1).

[1] Refer to STIC Translation

It would have been obvious to one of ordinary skill in the art at the time the invention was made to reproduce and vertically stack the Hoke and Watanabe reactor assembly as taught by Mikio Takagi.

Motivation to reproduce and vertically stack the Hoke and Watanabe reactor assembly as taught by Mikio Takagi is to minimize and effectively utilize expensive clean room space (page 7).

4. Claims 7, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halpin; Michael W. (US 6143079 A) and Hoke; William E. et al (US 5077875 A) in view of Chazee; Jean-Jacques (US 5190592 A). Halpin and Hoke are discussed above. Hoke further teaches wherein the flow restrictor (12,12a; Figure 3) comprises a plate (12; Figure 3) having at least one passageway (12a), as claimed by claim 18. Hoke further teaches wherein the flow restrictor (12,12a; Figure 3) comprises a rectangularly shaped plate (12; Figure 3) having a length dimension greater than a height dimension (Figure 3), - claim 19

Halpin and Hoke do not teach the exhaust manifold (24,26,28; Figure 2,3) assembly comprises an exhaust receiving portion and a flow restrictor, wherein the flow restrictor is affixed to an opening of the exhaust receiving portion and is adapted to restrict the gas and/or reactant flow through the opening from the process chamber into the exhaust receiving portion. Halpin and Hoke do not teach the reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 7, wherein the exhaust receiving portion is triangularly shaped.

Chazee teaches a similar film deposition chamber over substrates (Figure 1; column 1, lines 5-17, 43-66) including an exhaust receiving portion (24; column 2, lines 9-12) that is triangularly shaped.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the Halpin and Hoke exhaust receiving portion with Chazee's exhaust receiving portion that is triangularly shaped and dimensionally optimized as taught by Chazee.

Motivation to replace the Halpin and Hoke exhaust receiving portion with Chazee's exhaust receiving portion that is triangularly shaped and dimensionally optimized as taught by Chazee is to "regulate the overflow and suction rate of the residual vapour phase" (column 2, lines 9-12). It is well established that changes in apparatus dimensions are within the level of ordinary skill in the art.(Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied , 469 U.S. 830, 225 USPQ 232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04)

5. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halpin; Michael W. (US 6143079 A) and Hoke; William E. et al (US 5077875 A) in view of Costello; Simon et al. (US 6583638 B2). Halpin and Hoke are discussed above. None of Halpin and Hoke teach:

i. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the support (36/56 interface; Figure 2) of the chuck assembly (36; Figure 2) comprises a means for regulating a temperature of the substrate (56; Figure 3,4), as claimed by claim 8

ii. The reactor assembly (Figure 2, 4; column 8; lines 15-23; column 9; line 61 - column 10; line 9) according to Claim 1, wherein the support (36/56 interface; Figure 2) further comprises a resistance heating element and a cooling passage, as claimed by claim 9

Costello teaches a chuck (Figure 2) with resistanec heaters (claim 7) and coolant lines (27; Figure 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the Halpin and Hoke chuck with Costello chuck.

Motivation to replace the Halpin and Hoke chuck with Costello chuck is to control substrate temperature during processing as taught by Costello (column 1, lines 18-36).

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Halpin; Michael W. (US 6143079 A), Hoke; William E. et al (US 5077875 A), and Chazee; Jean-Jacques (US 5190592 A), in view of Won et al (USPat. 6,355,108 B1). Halpin, Hoke, and Chazee are discussed above. Halpin, Hoke, and Chazee do not teach an exhaust flow restrictor made of anodized aluminum. Won teaches anodized aluminum parts (22) in a film deposition chamber (Figure 3; column 6, lines 8-15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to fabricate the Halpin, Hoke, and Chazee rectangular aperture from anodized aluminum as taught by Won.

Motivation to fabricate the Halpin, Hoke, and Chazee rectangular aperture from anodized aluminum as taught by Won is to fabricate Hoke's rectangular aperture from an alternate and equivalent material.

Response to Arguments

7. Applicant's arguments filed April 8, 2005 have been fully considered but they are not persuasive.

8. In response to applicant's argument that there is no suggestion to combine the references of Halpin; Michael W. (US 6143079 A) in view of Hoke; William E. et al (US 5077875 A), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Examiner has demonstrated in this and prior actions that there is teaching, suggestion, and motivation to combine the two references by adding Hoke's flow-shaping portion (15a; Figure 3) to Halpin's inlet manifold assembly (22, 112, 114, 116; Figure 2,3). In particular, the Examiner again cites Hoke as teachig favorable flow characteristics resulting in uniform depositions as taught by Hoke (column 8, lines 5-10). Further, Applicant's believe the Examiner's proposed combination would "render the prior art unsatisfactory for its intended purpose". In response, the Examiner cites that both Halpin; Michael W. (US 6143079 A) and Hoke; William E. et al (US 5077875 A) each distinctly teach deposition apparatus with structurally analogous geometries and components as articulated by the Examiner in this and prior actions. Hoke is specific in teaching that *all* his components provide for "laminar flow characteristic of the incoming vapor stream to permit such uniform deposition" (Hoke: column 3; lines 34-60). Along this line:

9. In response to applicant's argument that Halpin; Michael W. (US 6143079 A) and William E. et al (US 5077875 A) is nonanalogous art, either to each other and to the present application as claimed, it has been held that a prior art reference must either be in the field of

applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the cited prior art reference are both in the field of applicant's endeavor (deposition apparatus) and are reasonably pertinent to the particular problem with which the applicant was concerned, in this case reactor components and geometries to effect flow uniformity during processing of semiconductor substates – see Applicant's specification sections [0008]-[0009], Halpin; Michael W. (US 6143079 A; Figure 2, 4; column 1; lines 6-13), Hoke; William E. et al (US 5077875 A; column 3; lines 34-60).

10. Applicant states:

"

In each of Applicant's independent claims, the claimed reactor assembly comprises, *inter alia*, first and second sidewall openings that define an entire flow path of the gas and/or the reactant flowinto and out of the proces chamber. In contrast, Halpin...

" as recited in each of the newly amended independent claims.

11. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Further, in response to Applicant's claim amendments, it is cited that Hoke; William E. et al (US 5077875 A), not Halpin, teaches a similar CVD apparatus (Figure 3) including: ... wherein the first (12; Figure 3) and second (opposite 12; Figure 3) sidewall openings define an entire flow path (volume inside

11) of the gas and/or the reactant flow into and out of the process chamber (11; Figure 3) – claim 1, 32.

12. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

13. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

Rudy Zervigon
6/14/5